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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/013,103

11/06/2001

Krishna Seshan

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03/20/2003

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EXAMINER

LEWIS, MONICA

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 03/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/013,103

Applicant(s)

SESHAN ET AL.

Examiner

Monica Lewis

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the amendment filed December 5, 2002.

Response to Arguments

2. Applicant's arguments with respect to claims 17-24 have been considered but are moot in view of the new ground(s) of rejection.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 17 and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Takiar et al. (U.S. Patent No. 4,723,197).

In regards to claim 17, Takiar et al. ("Takiar") discloses the following:

- a) an oxide layer (16) (See Figure 3);
- b) an adhesion layer (22) formed over said oxide layer (See Figure 3); and
- c) a first passivation layer (32) formed on said adhesion layer, said first passivation layer and said adhesion layer including at least one common chemical element (See Figure 3).

In regards to claim 19, Takiar discloses the following:

- a) oxide layer includes silicon dioxide (SiO_2) (See Column 2 Lines 65 and 66).

In regards to claim 20, Takiar discloses the following:

- a) adhesion layer includes silicon oxynitride (See Column 3 Line 26).

In regards to claim 21, Takiar discloses the following:

- a) first passivation layer includes silicon nitride (Si_3N_4) (See Column 4 Lines 3-5).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as obvious over Takiar et al. (U.S. Patent No. 4,723,197) in view of Bryant et al. (U.S. Patent No. 5,698,456).

In regards to claim 18, Takiar fails to disclose the following:

a) a second passivation layer formed upon said first passivation layer.

However, Bryant et al. ("Bryant") discloses passivation layers formed upon each other (See Figure 4e). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Takiar to include a second passivation layer formed upon said first passivation layer as disclosed in Bryant because it aids in protecting the device (See Column 2 Lines 11-33).

Additionally, since Takiar and Bryant are both from the same field of endeavor, the purpose disclosed by Bryant would have been recognized in the pertinent art of Takiar.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as obvious over Takiar et al. (U.S. Patent No. 4,723,197) in view of Bryant et al. (U.S. Patent No. 5,698,456) and Ando et al. (Japanese Patent No. 406349814).

In regards to claim 22, Takiar fails to disclose the following:

a) second passivation layer includes polyimide.

However, Ando et al. ("Ando") discloses a polyimide layer (See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Takiar to include a polyimide layer as disclosed in Ando because it aids in suppressing the peeling of an insulating film (See Abstract).

Additionally, since Takiar and Ando are both from the same field of endeavor, the purpose disclosed by Ando would have been recognized in the pertinent art of Takiar.

10. Claim 23 is rejected under 35 U.S.C. 103(a) as obvious over Takiar et al. (U.S. Patent No. 4,723,197) in view of Mu et al. (U.S. Patent No. 5,612,254).

In regards to claim 23, Takiar discloses the following:

- a) a silicon dioxide insulating layer (16) (See Figure 3); and
- b) a silicon nitride hard passivation layer (32) formed on said silicon oxynitride adhesion layer (See Figure 3).

In regards to claim 23, Takiar fails to disclose the following:

- a) a silicon oxynitride adhesion layer formed over said silicon dioxide insulating layer.

However, Mu discloses a silicon oxynitride layer formed over said silicon dioxide layer (See Figure 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Takiar to include a silicon oxynitride layer as disclosed in Mu because it aids in acting as a diffusion barrier (See Column 8 Lines 1-3).

Additionally, since Takiar and Mu are both from the same field of endeavor, the purpose disclosed by Mu would have been recognized in the pertinent art of Takiar.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as obvious over Takiar et al. (U.S. Patent No. 4,723,197) in view of Mu et al. (U.S. Patent No. 5,612,254) and Bryant et al. (U.S. Patent No. 5,698,456).

In regards to claim 24, Takiar fails to disclose the following:

- a) photodefinable polyimide soft passivation layer formed on said silicon nitride hard passivation layer.

However, Bryant discloses a polyimide layer (34) formed on silicon nitride (See Figure 4e). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Takiar to include a polyimide layer as disclosed in Bryant because it aids in protecting the device (See Column 5 Lines 6 and 7).

Additionally, since Takiar and Bryant are both from the same field of endeavor, the purpose disclosed by Bryant would have been recognized in the pertinent art of Takiar.

Conclusion

12. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: a) Ito (Japanese Patent No. 402135754) discloses manufacturing a semiconductor substrate; and b) Yamashita (Japanese Patent No. 409330908) discloses manufacturing a semiconductor device.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 703-305-3743.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML

March 13, 2003


AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800